

The Santa Ana Watershed Integrated Water Resources Plan (IWRP)



Adopted by the
Santa Ana Watershed Project Authority
June 2002



The Santa Ana River Watershed

San
Gabriel
Mtns.

San
Bernardino
Mtns.

Chino
Basin

Los
Angeles



Orange
County

Santa
Ana
Mtns.

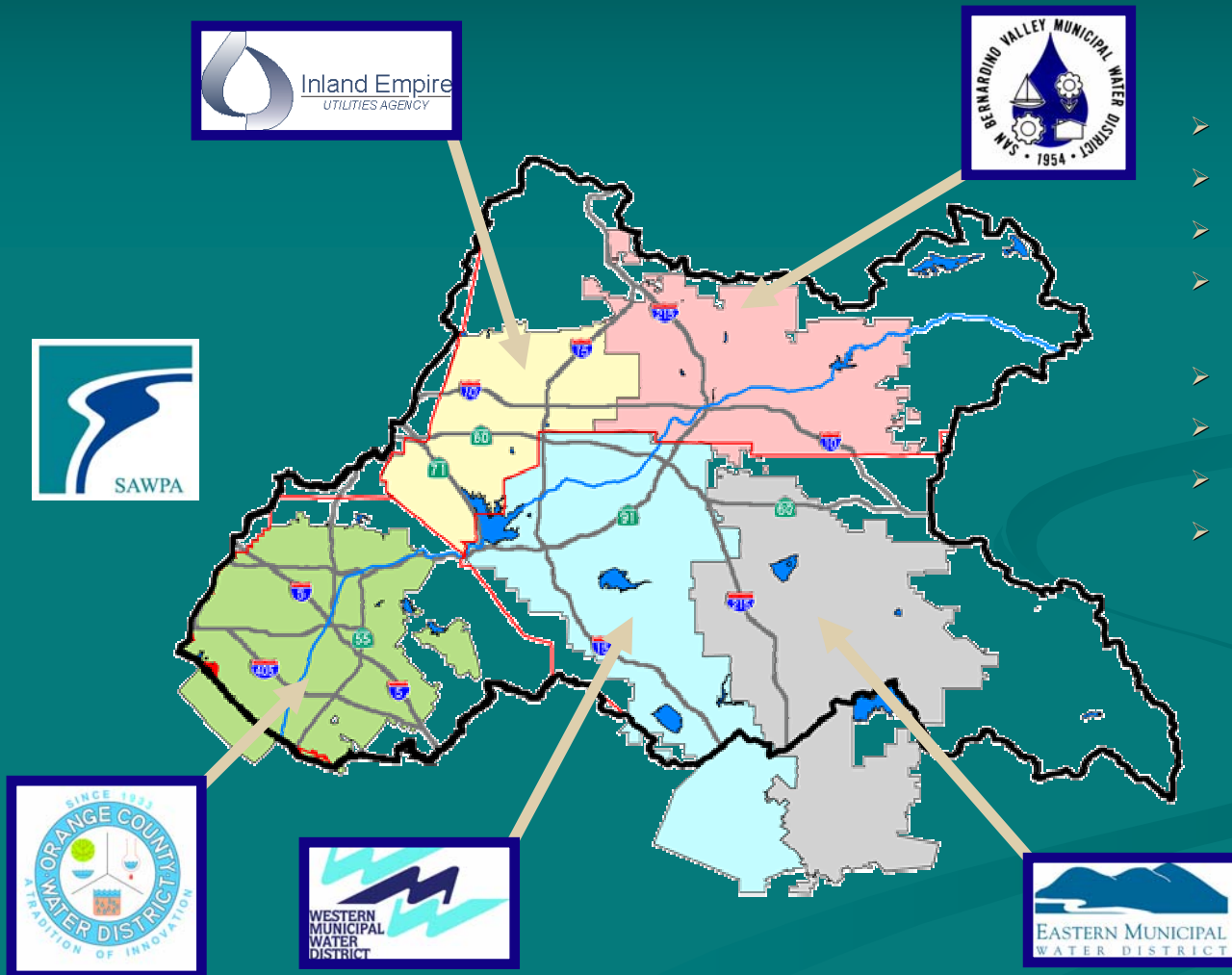
Lake Elsinore/
San Jacinto Watershed

San
Jacinto
Mtns.

*Pacific
Ocean*

Collaboration

SAWPA Member Agencies

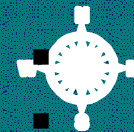
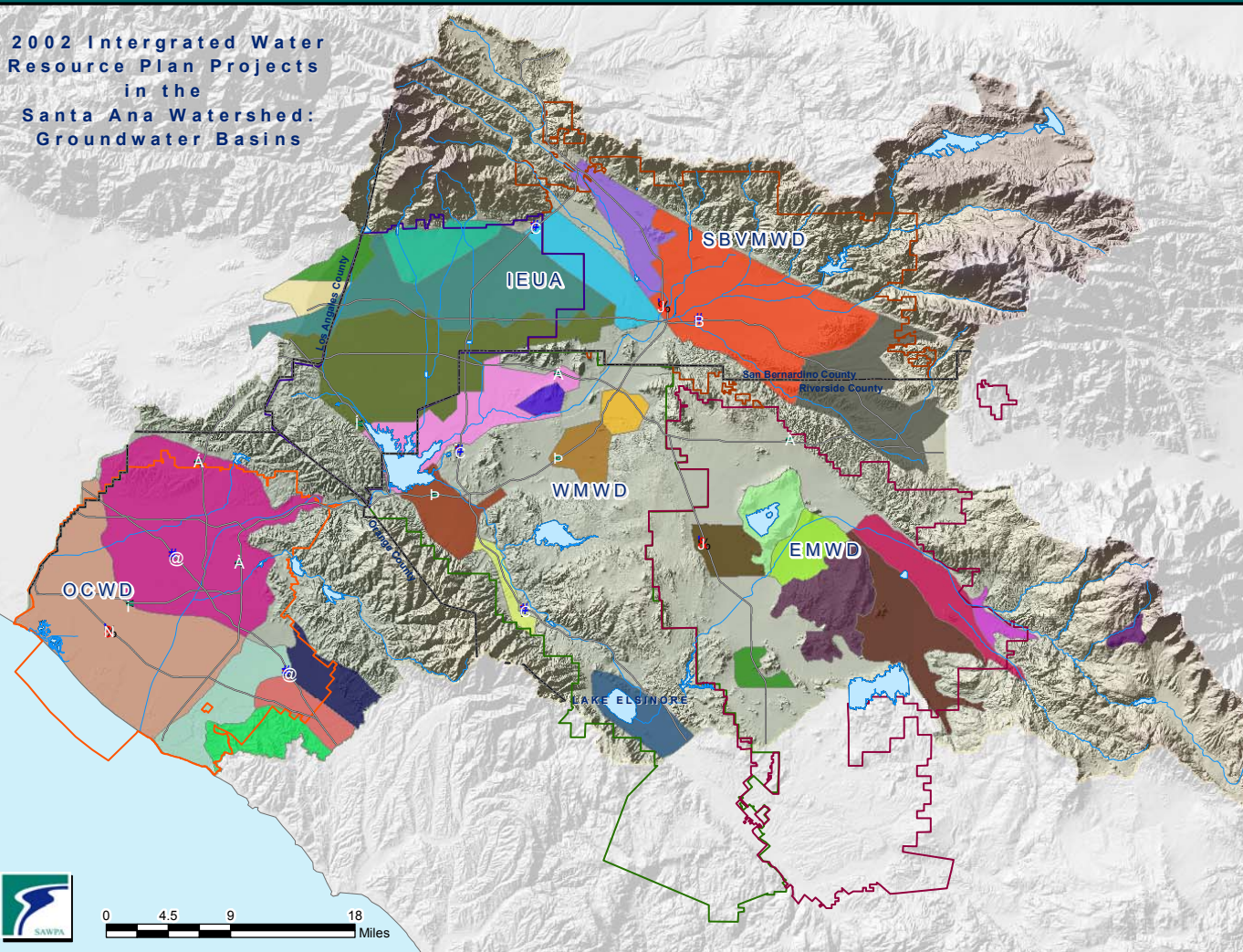


Other Stakeholders

- 97 Water-related Agencies
- 4 Counties
- 59 Cities
- State water, environmental, and regulatory agencies
- Federal agencies
- Other Special Districts
- Special Interest Groups
- 5 million (and growing) residents

Ongoing Management: Groundwater Basins

2002 Integrated Water
Resource Plan Projects
in the
Santa Ana Watershed:
Groundwater Basins



Legend

- County Boundaries
- Freeways
- Water bodies

BASIN

- ARLINGTON
- BIG BEAR VALLEY
- BUNKER HILL I
- BUNKER HILL II
- CHINO I
- CHINO II
- CHINO III
- CLAREMONT HEIGHTS
- COLTON
- CUCAMONGA
- ELSINORE
- IDYLLWILD
- IRVINE FOREBAY
- IRVINE FOREBAY II
- LAKEVIEW
- LYTLE CREEK
- MENFEE II
- PERRIS NORTH
- PERRIS SOUTH I
- PERRIS SOUTH II
- PERRIS SOUTH III
- POMONA
- RIALTO
- RIVERSIDE I
- RIVERSIDE II
- RIVERSIDE III
- SAN JACINTO LOW PRESSURE
- SAN TIMOTEO
- SANTA ANA FOREBAY
- SANTA ANA PRESSURE
- TEMESCAL
- UPPER TEMESCAL

Purpose of the IWRP Update

- Update 1998 Water Resources Plan
 - Planning tool updates
 - Funding status changes
- Chart project benefits in six major categories
- Identify short-term and long-term challenges to a stable watershed
- Both specific and long-term planning project goals at 2010, 2025, and 2050 for water supply, quality and salt balance



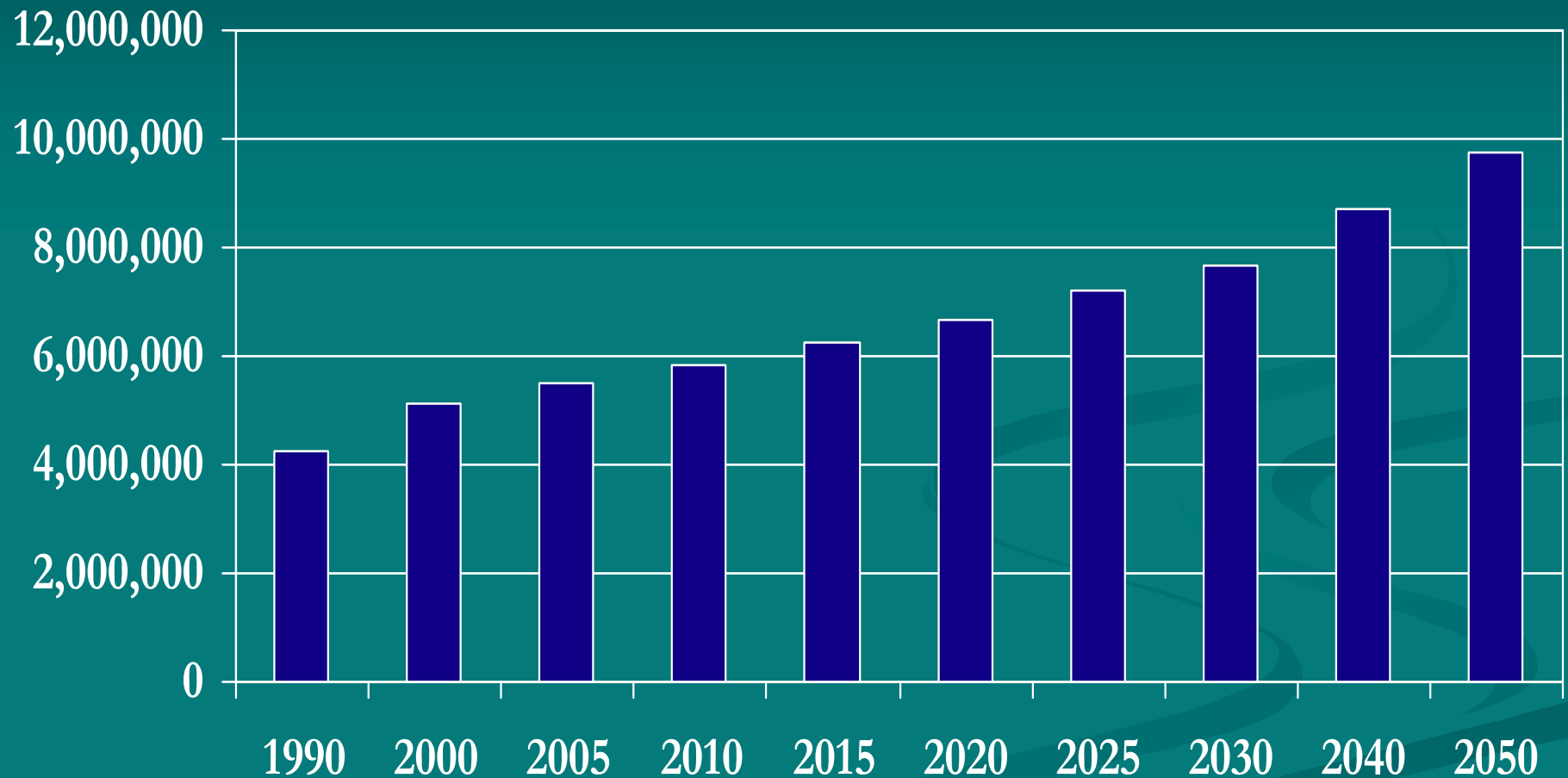
Background

- Most SAWPA agencies have historically relied on Metropolitan Water District (MWD) for imported water
- In recent years, SAWPA agencies imported approximately 450,000 AFY, or 33% of total water consumption
 - DWR's California Aqueduct
 - MWD's Colorado River Aqueduct (CRA)
- MWD 1996 IRP
 - Reduced dry-year dependence on supplies from the California Aqueduct
 - Increased reliance on groundwater storage.
- MWD's IRP Update complete July 2002

Recent Changes

- 250 million dollars Proposition 13 (Costa-Machado Water Act of 2000) changed priorities
- Kuehl and Costa Water Supply Bills focused Planning and
- SAWPA member agency planning reports
- MWD IRP Update process integration
- Environmental and Habitat Plan in Progress

Population: 1990-2050

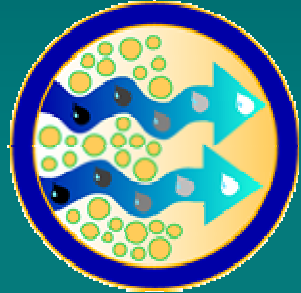


SOURCE: Southern California Association of Governments
and CSUF Center for Demographic Research

Six Major Project Categories



Water Storage



**Water Quality
Improvements**



**Water
Recycling**



Flood Protection

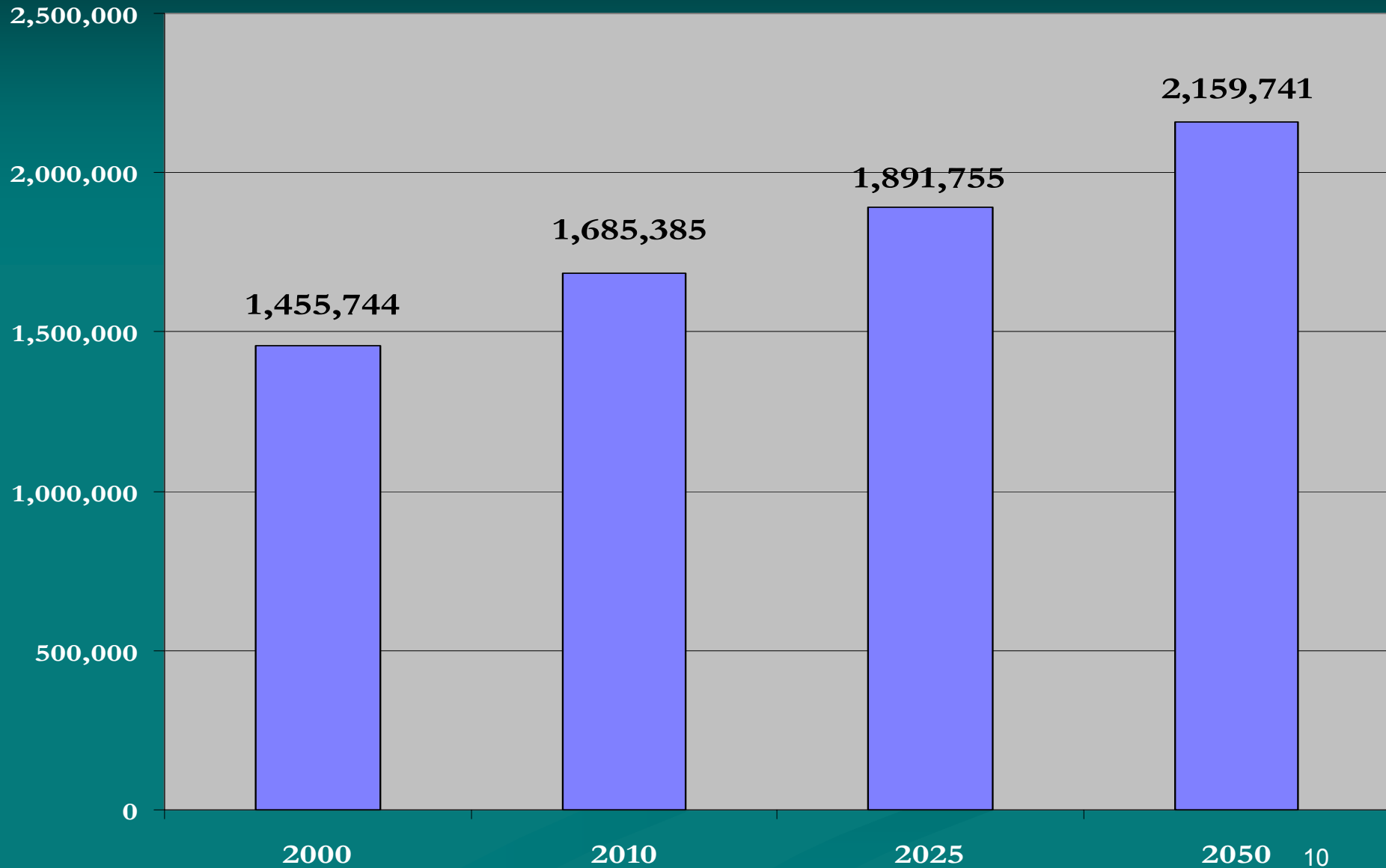


**Environment
and Habitat**



**Recreation and
Conservation**

Current and Projected Direct Use Water Demands in the Santa Ana Watershed (AFY)



Water Supply Sources

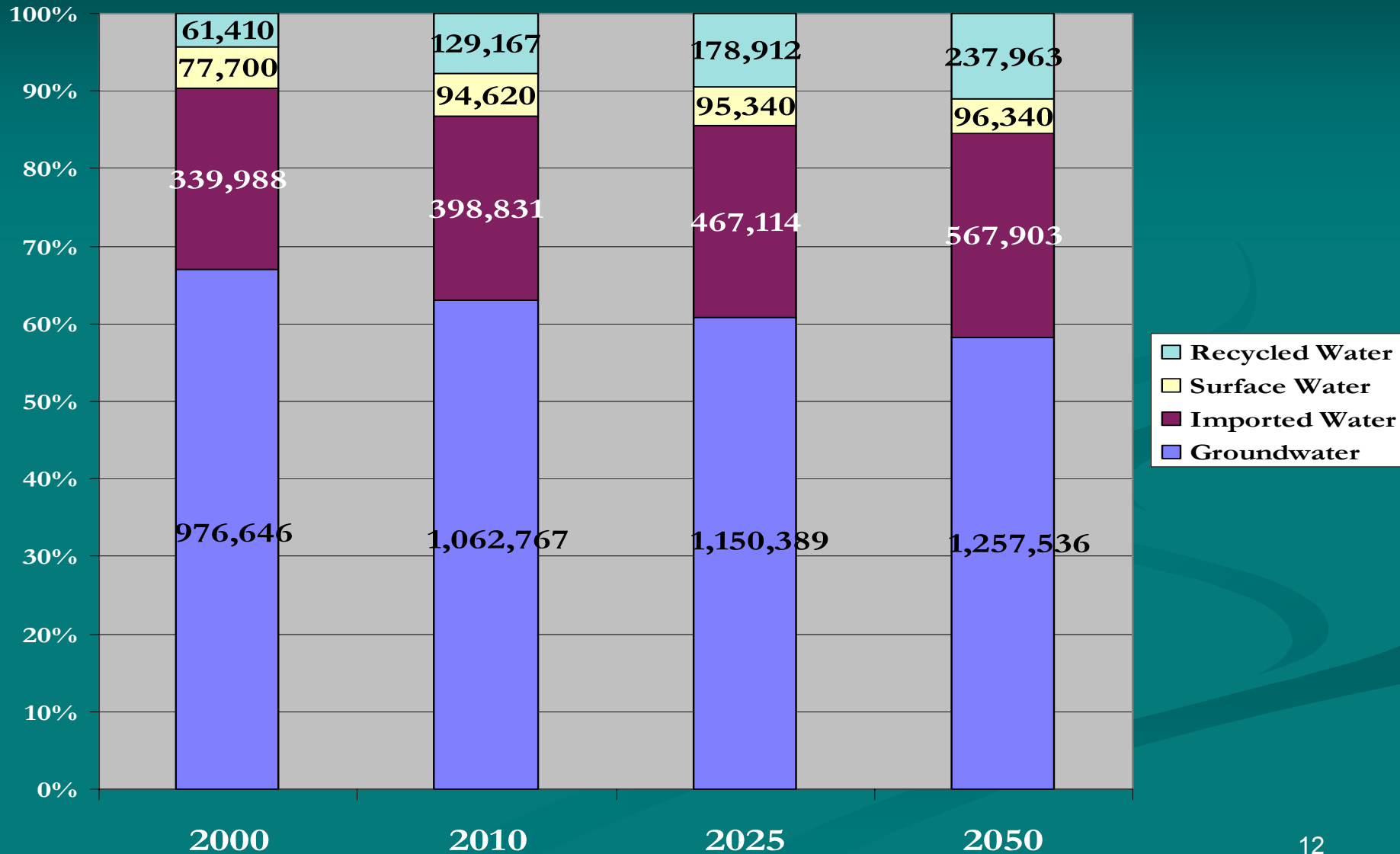
Direct Use Water Supply Sources

- Groundwater
- Imported water
- Surface water
- Recycled water

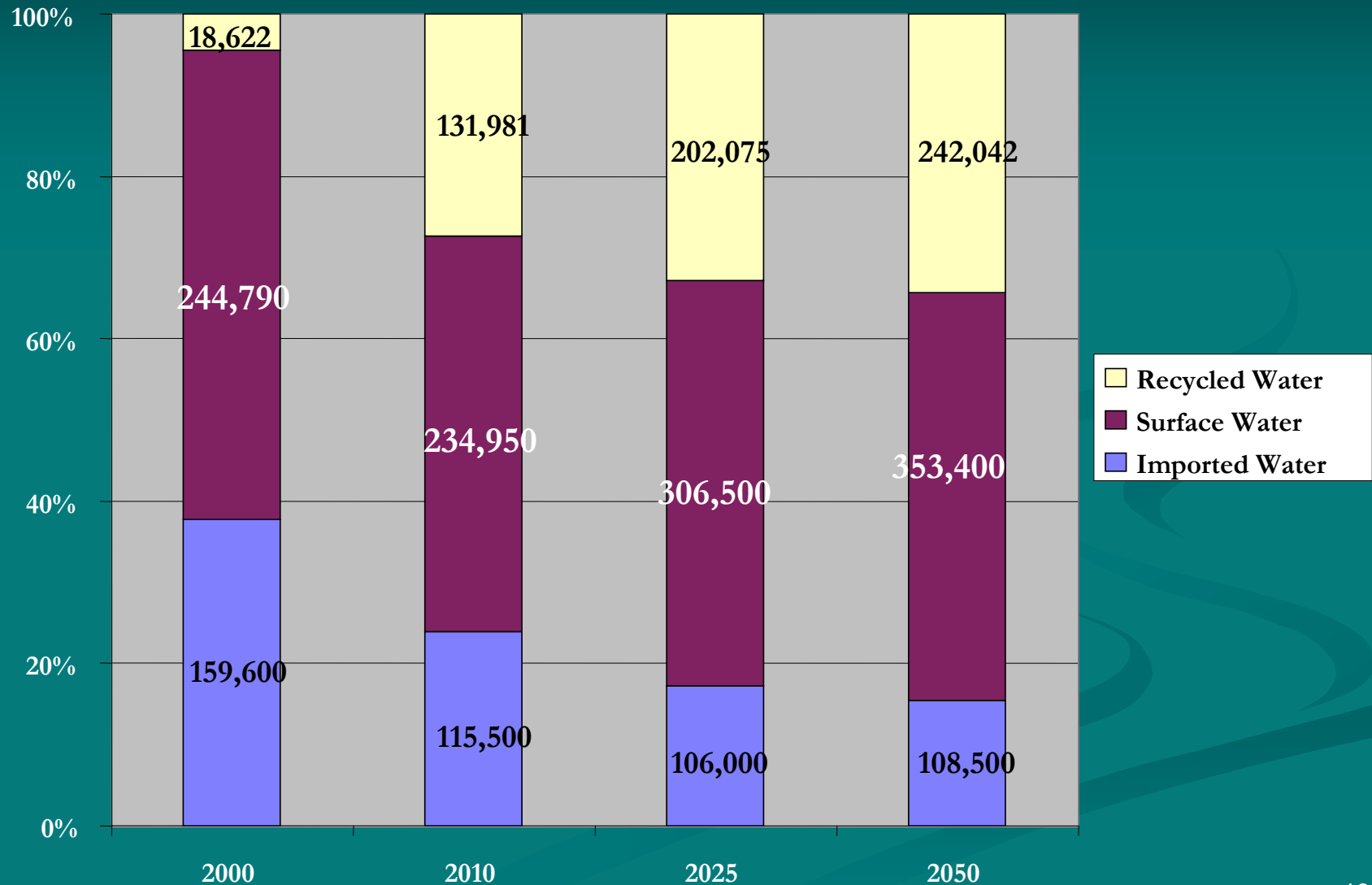
Additional Recharge Water Supply Sources

- Imported water
- Surface water
- Recycled water

Current and Projected Water Supply Sources to Meet Direct Use Water Demands in the Santa Ana Watershed (AFY)



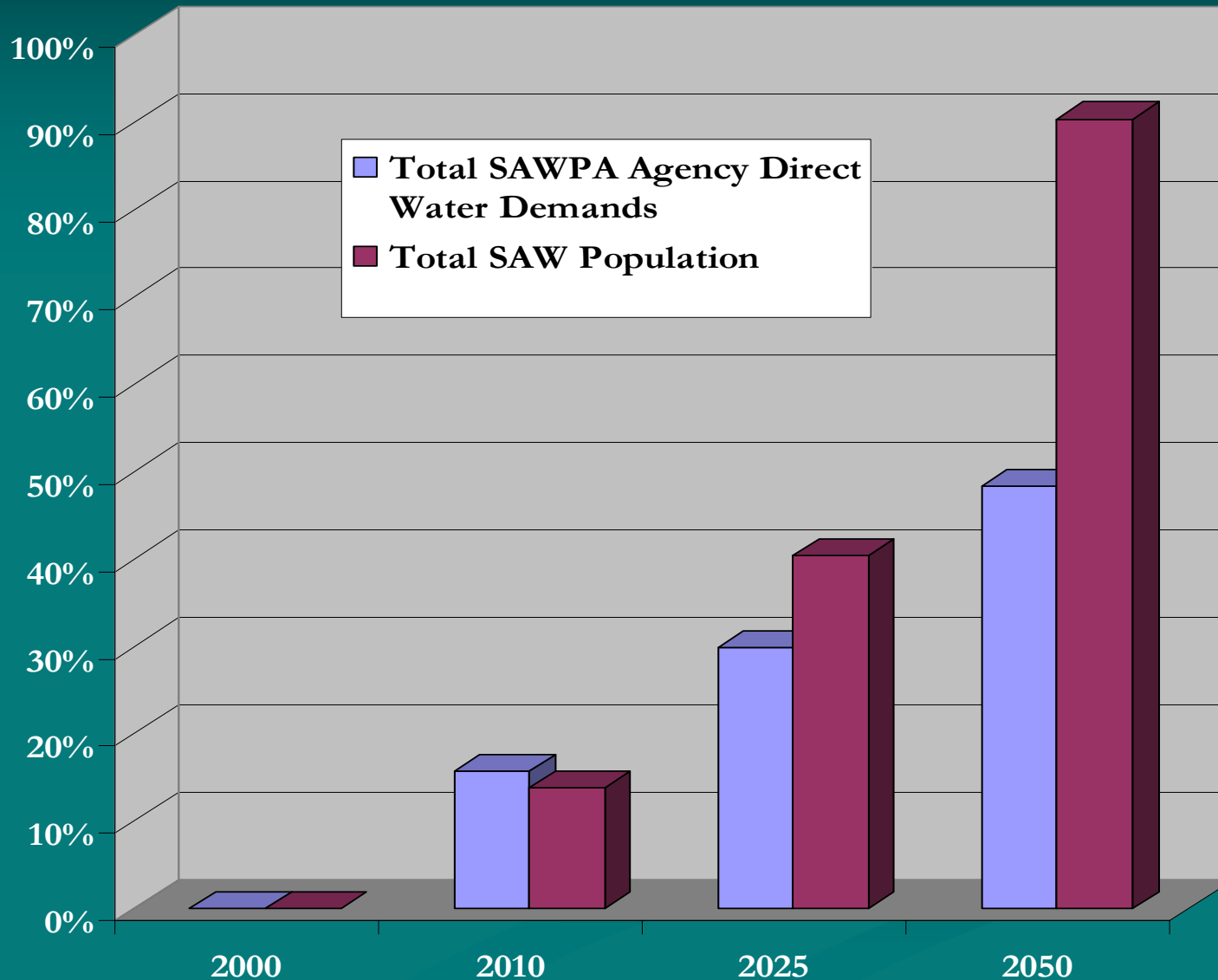
Total Current and Projected Additional Recharge Water Supply Sources to Meet Recharge Demands in the Santa Ana Watershed (AFY)



Challenges to Drought Proofing the Santa Ana Watershed

- Long-term water supplies to meet water demands
- Imported water quality
- Conjunctive use – long term storage
- Water recycling – “new” water to replace need for imported water
- Desalting/ion exchange facilities – provides a new water source while improving basin water quality
- In basin water quality
- Biosolids
- Funding

Current and Projected Direct Use Water Demand Growth (Without Conservation) vs. Population Projection Growth in the Santa Ana Watershed



2025 & 2050 Zero Imported Water During Drought Year

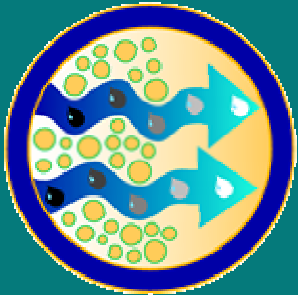
- Regular year supplies – provide new water supply year round (water recycling, desalters, etc.)
- Conservation – ongoing water supply year round
- Drought year supplies – conjunctive use, drawn upon during times of drought
- Regular year water storage replenishment resumes once drought ends

IWRP Proposed Supplies to Drought-Proof the Watershed



➤ Conjunctive use projects:

- 2025 – 318,000 AFY
- 2050 – 318,000 AFY



➤ Desalting/ion exchange water projects:

- 2025 – 67,000 AFY
- 2050 – 152,000 AFY

IWRP Proposed Supplies to Drought-Proof the Watershed



➤ Recycled water projects:

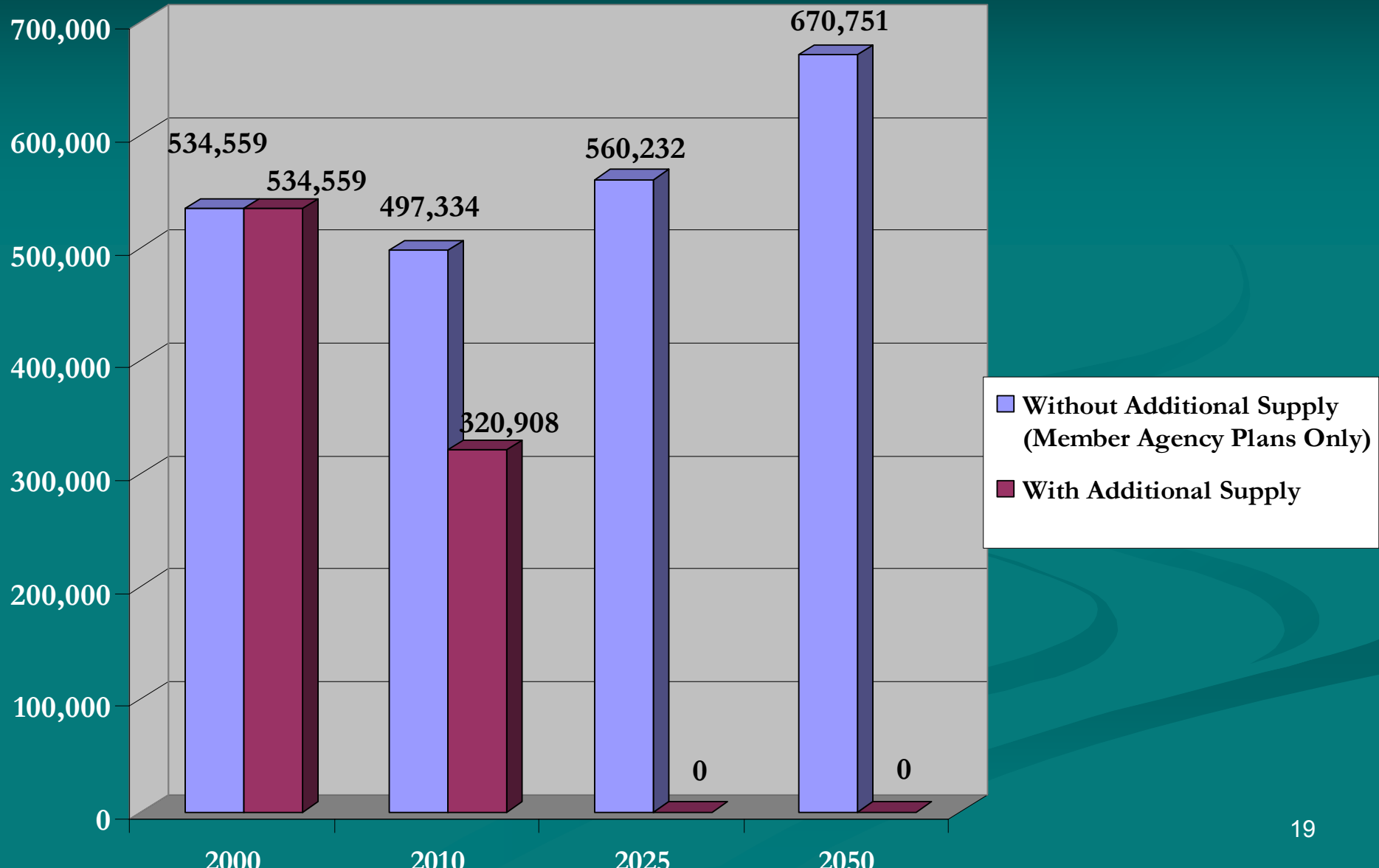
- 2025 – 14,000 AFY
- 2050 – 18,000 AFY



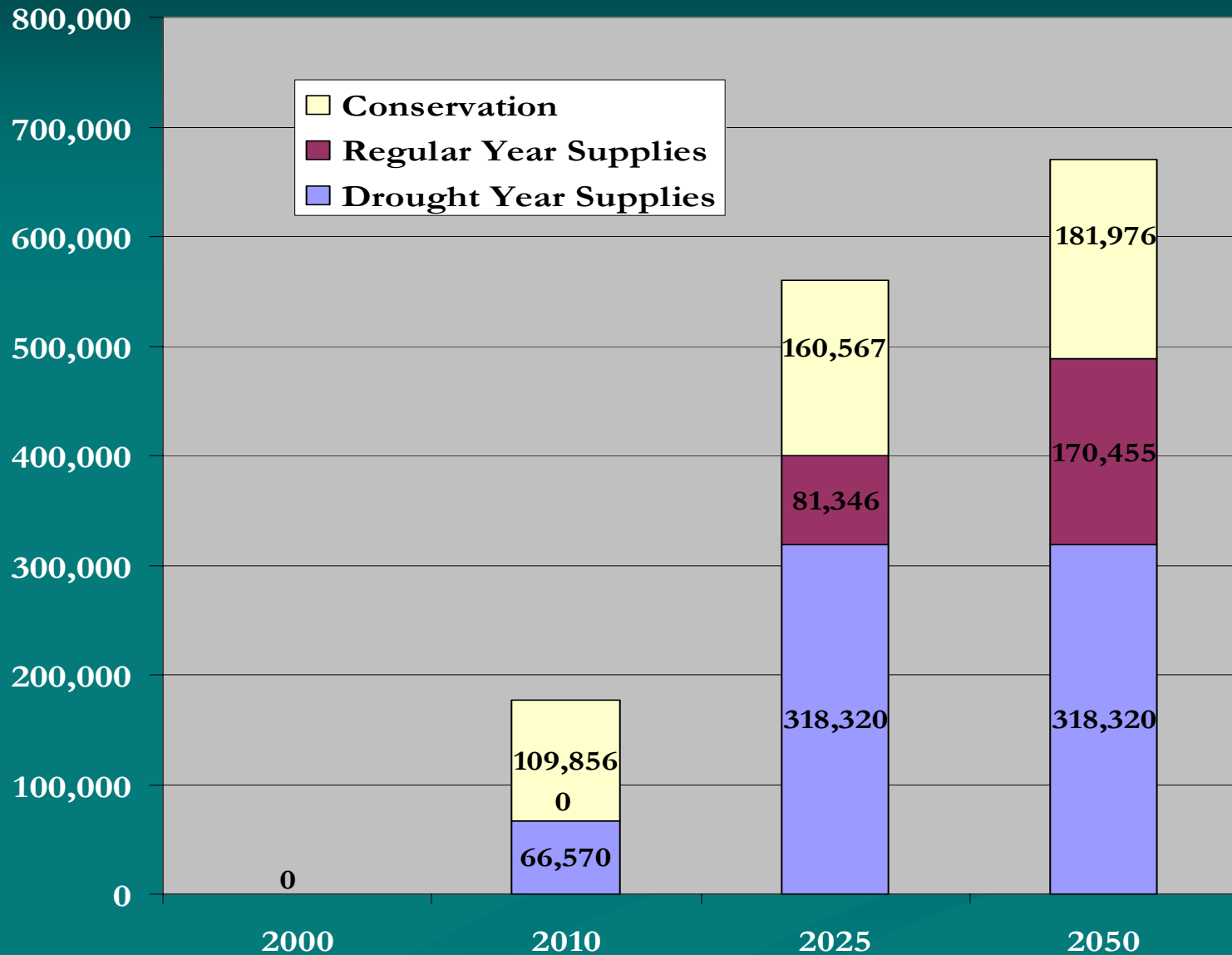
➤ Conservation:

- 2025 – 161,000 AFY
- 2050 – 182,000 AFY

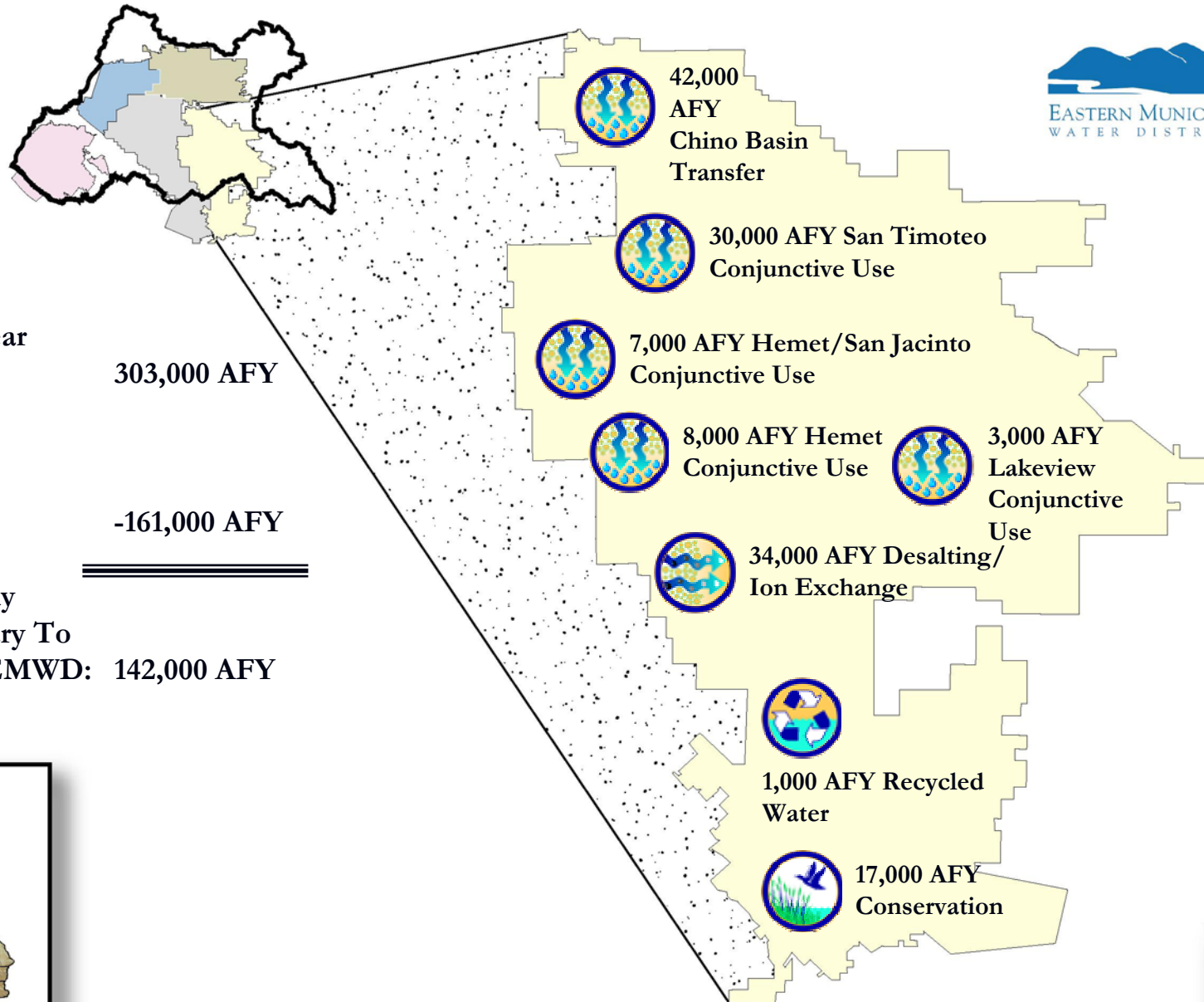
Projected Drought Year Imported Water Demands of SAWPA Agencies (AFY) with Proposed IWRP Projects



Potential Water Supply Available from Proposed IWRP Projects during Drought Year for SAWPA Agencies (AFY)



Long-Term Supply Sources to Drought-Proof EMWD - Year 2025 (AFY)



2025 Drought Year
Requirements: 303,000 AFY

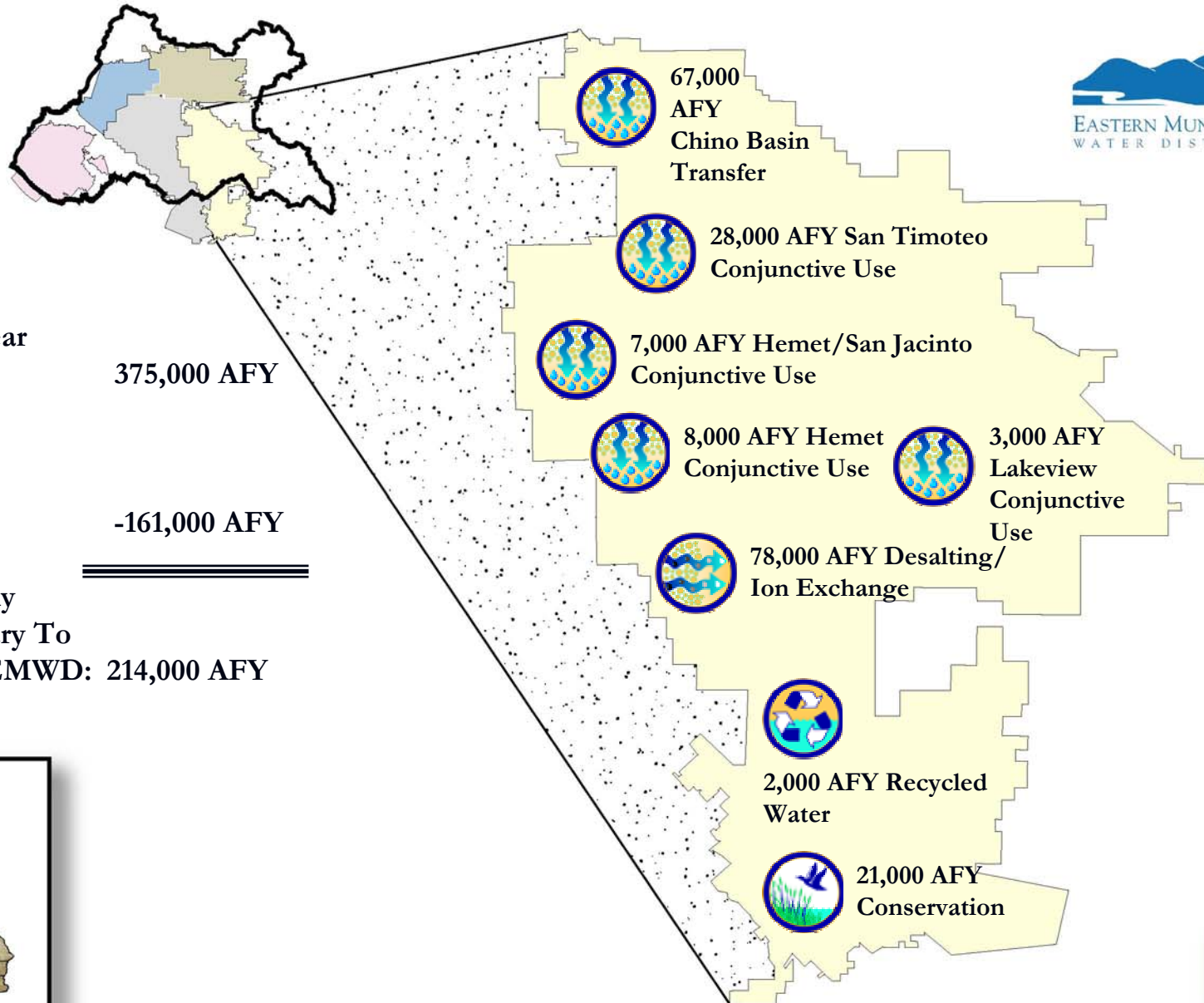
2025 Current &
Planned Local
Supplies: -161,000 AFY

Additional Supply
Sources Necessary To
Drought-Proof EMWD: 142,000 AFY



Figure 11.6

Long-Term Supply Sources to Drought-Proof EMWD - Year 2050 (AFY)



2050 Drought Year
Requirements:

375,000 AFY

2050 Current &
Planned Local
Supplies:

-161,000 AFY

Additional Supply
Sources Necessary To
Drought-Proof EMWD: 214,000 AFY



Figure 11.7

Long-Term Supply Sources to Drought-Proof IEUA - Year 2025 (AFY)



2025 Drought Year
Requirements:

433,000 AFY

2025 Current &
Planned Local
Supplies:

-345,000 AFY

Additional Supply
Sources Necessary To
Drought-Proof IEUA:

88,000 AFY

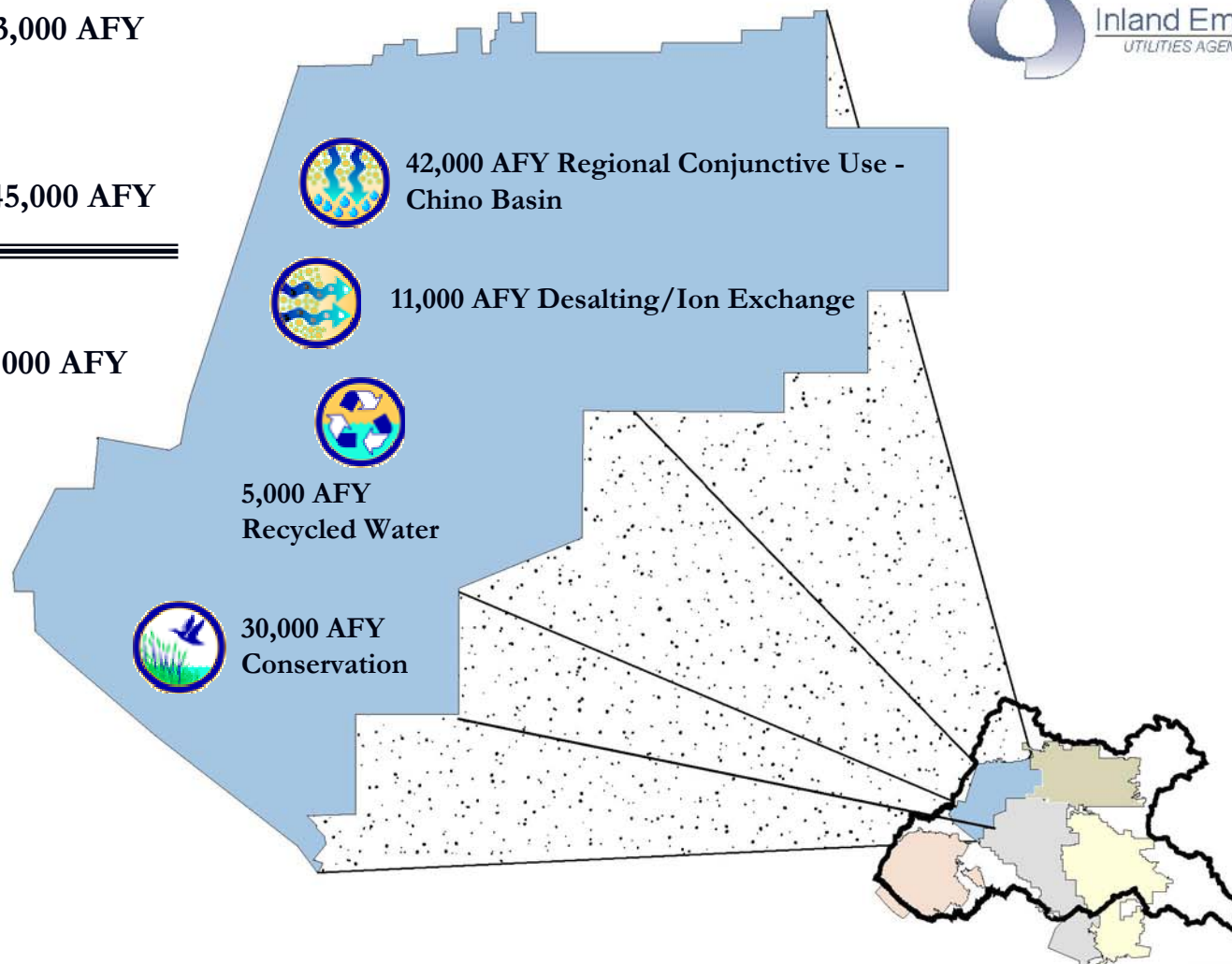


Figure 11.8

Long-Term Supply Sources to Drought-Proof IEUA - Year 2050 (AFY)



**2050 Drought Year
Requirements:**

506,000 AFY

**2050 Current &
Planned Local
Supplies:**

-396,000 AFY

**Additional Supply
Sources Necessary To
Drought-Proof IEUA:**

110,000 AFY

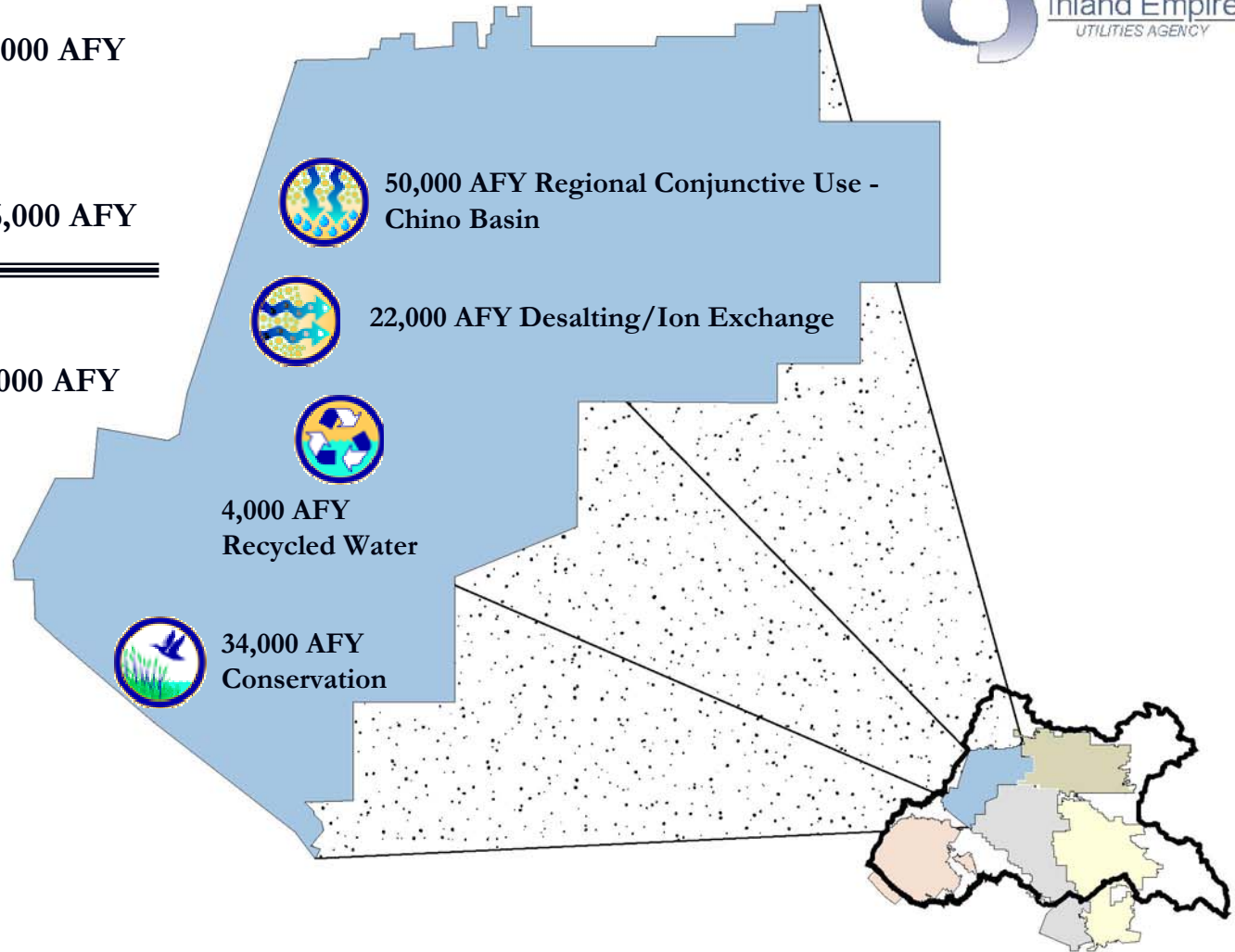
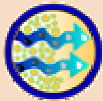


Figure 11.9

Long-Term Supply Sources to Drought-Proof OCWD - Year 2025 (AFY)



33,000 AFY Regional Conjunctive
Use - Chino Basin



0 AFY Desalting/Ion
Exchange



2,000 AFY Recycled Water



58,000 AFY Conservation

2025 Drought Year
Requirements:

1,036,000 AFY

2025 Current &
Planned Local
Supplies:

-943,000 AFY

Additional Supply
Sources Necessary To
Drought-Proof OCWD:

93,000 AFY



Figure 11.10

Long-Term Supply Sources to Drought-Proof OCWD - Year 2050 (AFY)



17,000 AFY Regional Conjunctive
Use - Chino Basin



11,000 AFY Ocean Desalination



7,000 AFY Recycled Water



58,000 AFY Conservation

2050 Drought Year
Requirements:

1,084,000 AFY

2050 Current &
Planned Local
Supplies:

-991,000 AFY

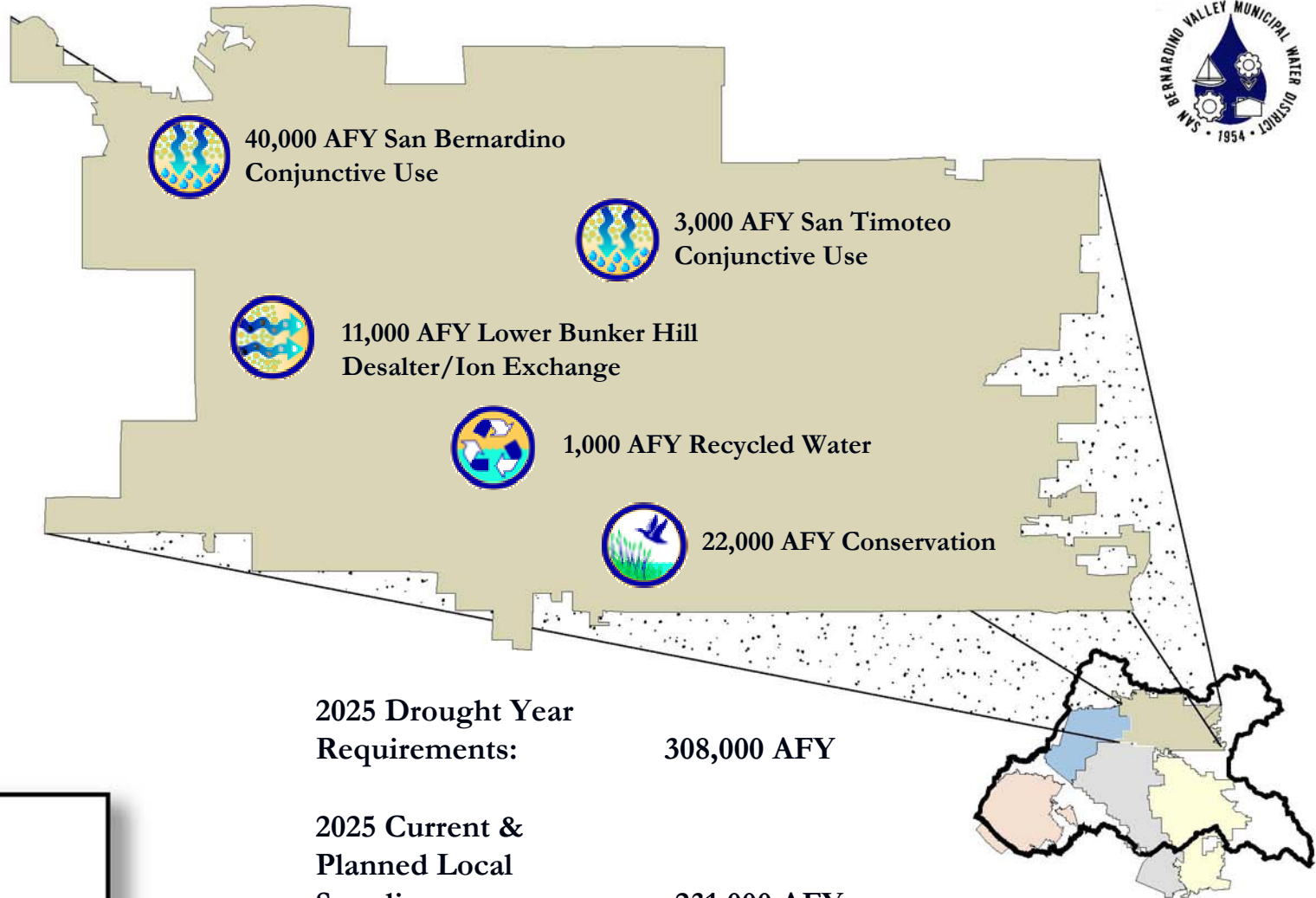
Additional Supply
Sources Necessary To
Drought-Proof OCWD: 93,000 AFY



Figure 11.11



Long-Term Supply Sources to Drought-Proof SBVMWD - Year 2025 (AFY)



2025 Drought Year
Requirements:

308,000 AFY

2025 Current &
Planned Local
Supplies:

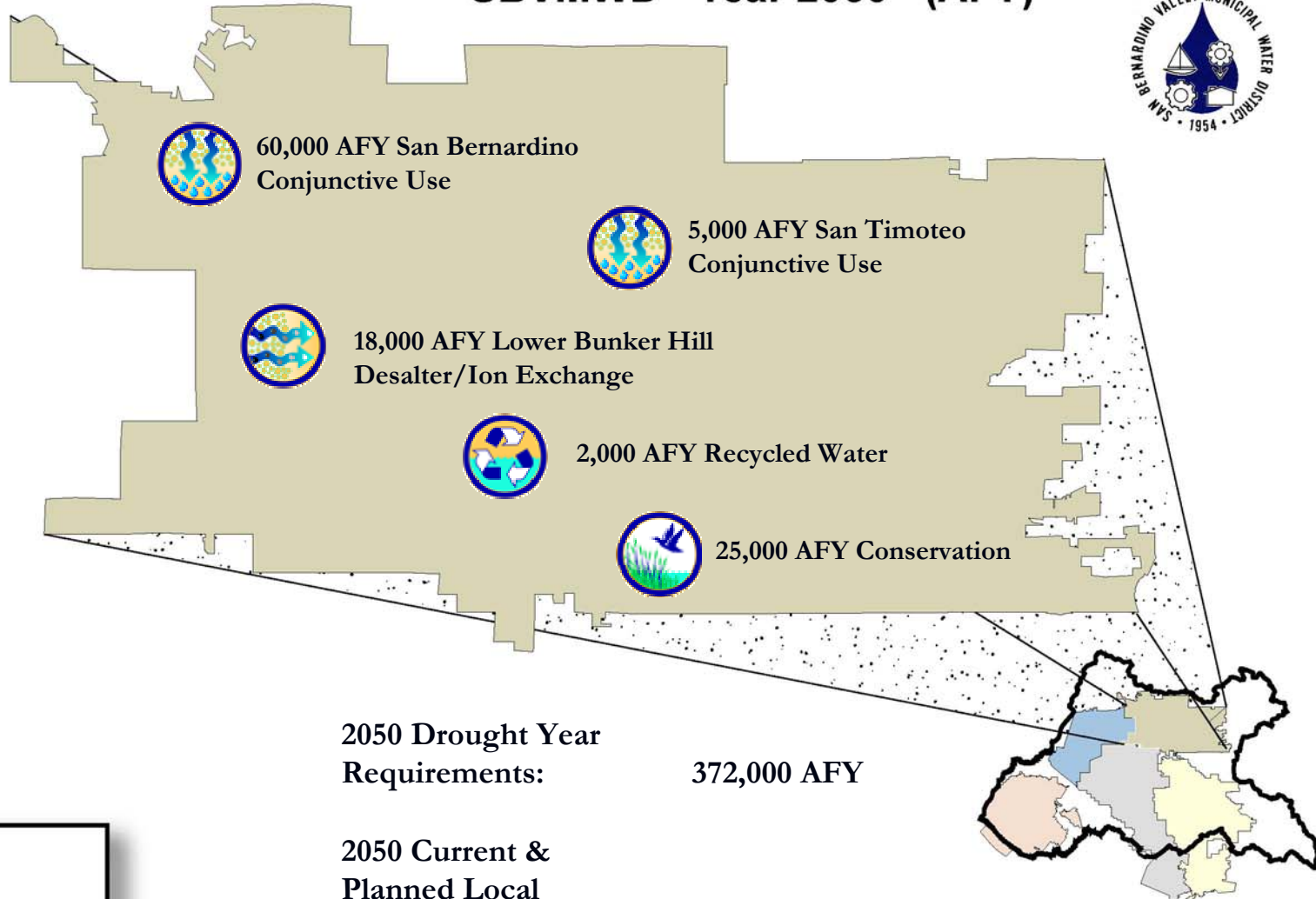
-231,000 AFY

Additional Supply
Sources Necessary To
Drought-Proof SBVMWD: 77,000 AFY

Figure 11.12



Long-Term Supply Sources to Drought-Proof SBVMWD - Year 2050 (AFY)



2050 Drought Year
Requirements:

372,000 AFY

2050 Current &
Planned Local
Supplies:

-262,000 AFY

Additional Supply
Sources Necessary To
Drought-Proof SBVMWD: 110,000 AFY

Figure 11.13



Long-Term Supply Sources to Drought-Proof WMWD - Year 2025 (AFY)

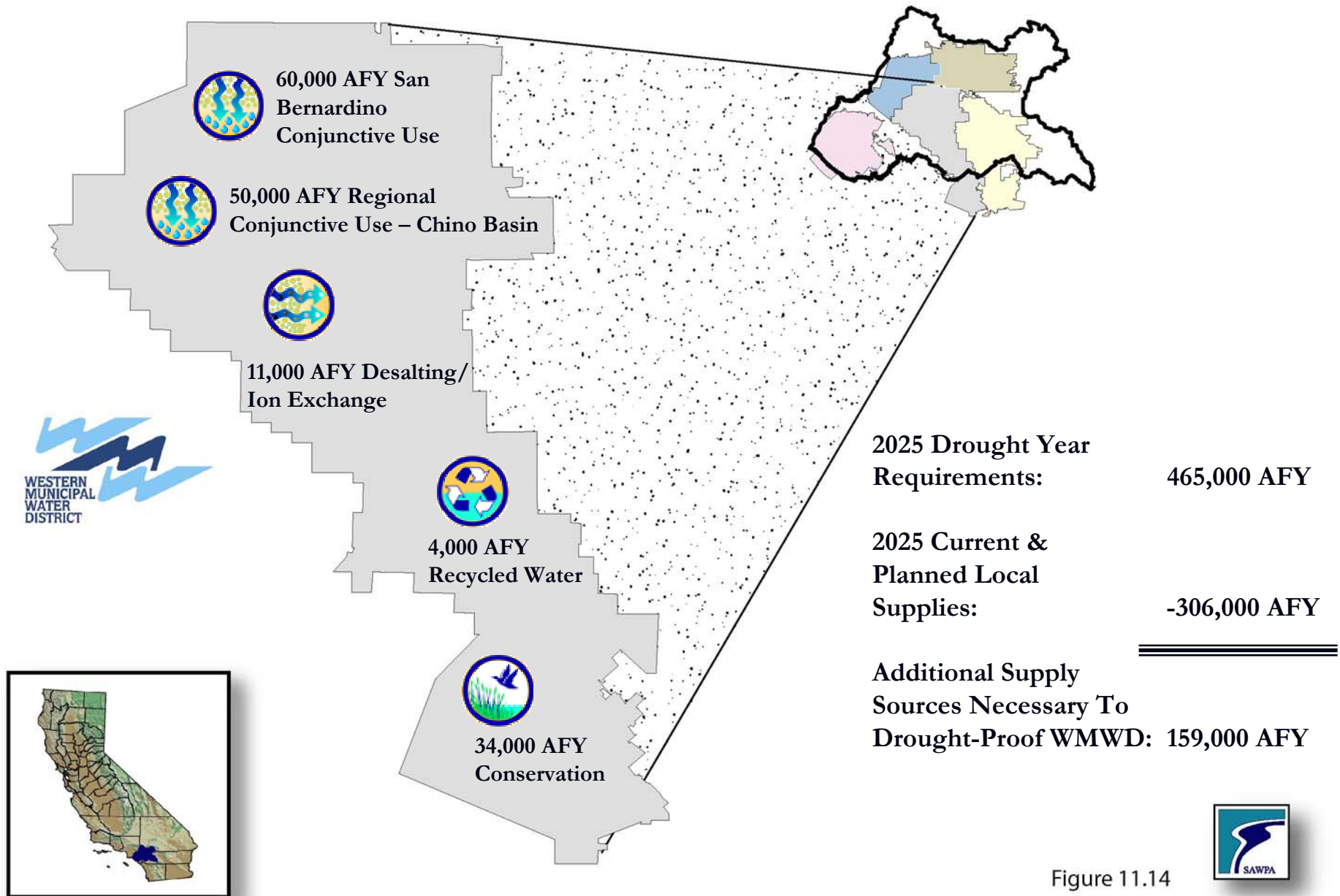


Figure 11.14



Long-Term Supply Sources to Drought-Proof WMWD - Year 2050 (AFY)

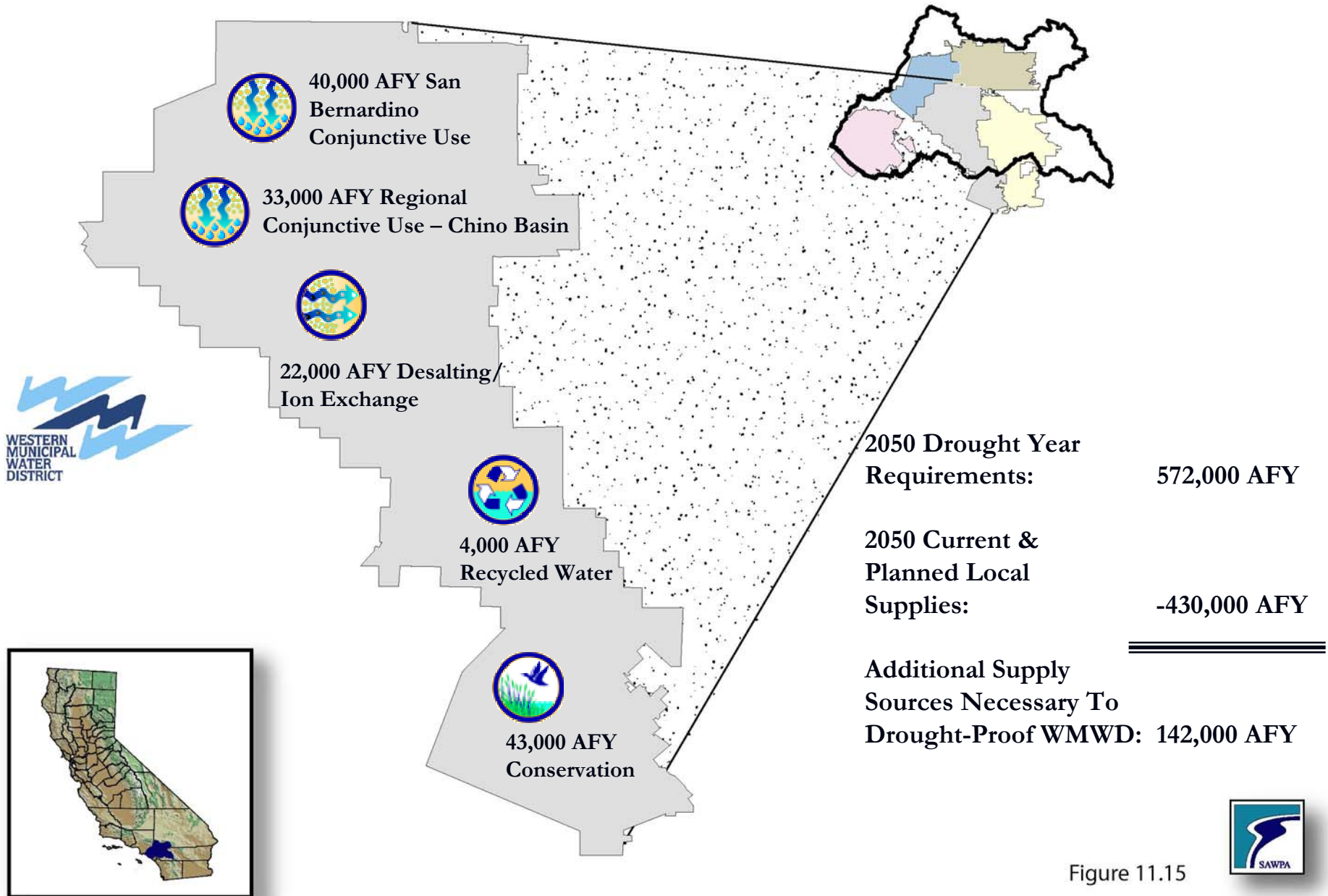


Figure 11.15

Salt Balance (Tons) in the Santa Ana River Basin Year 2000

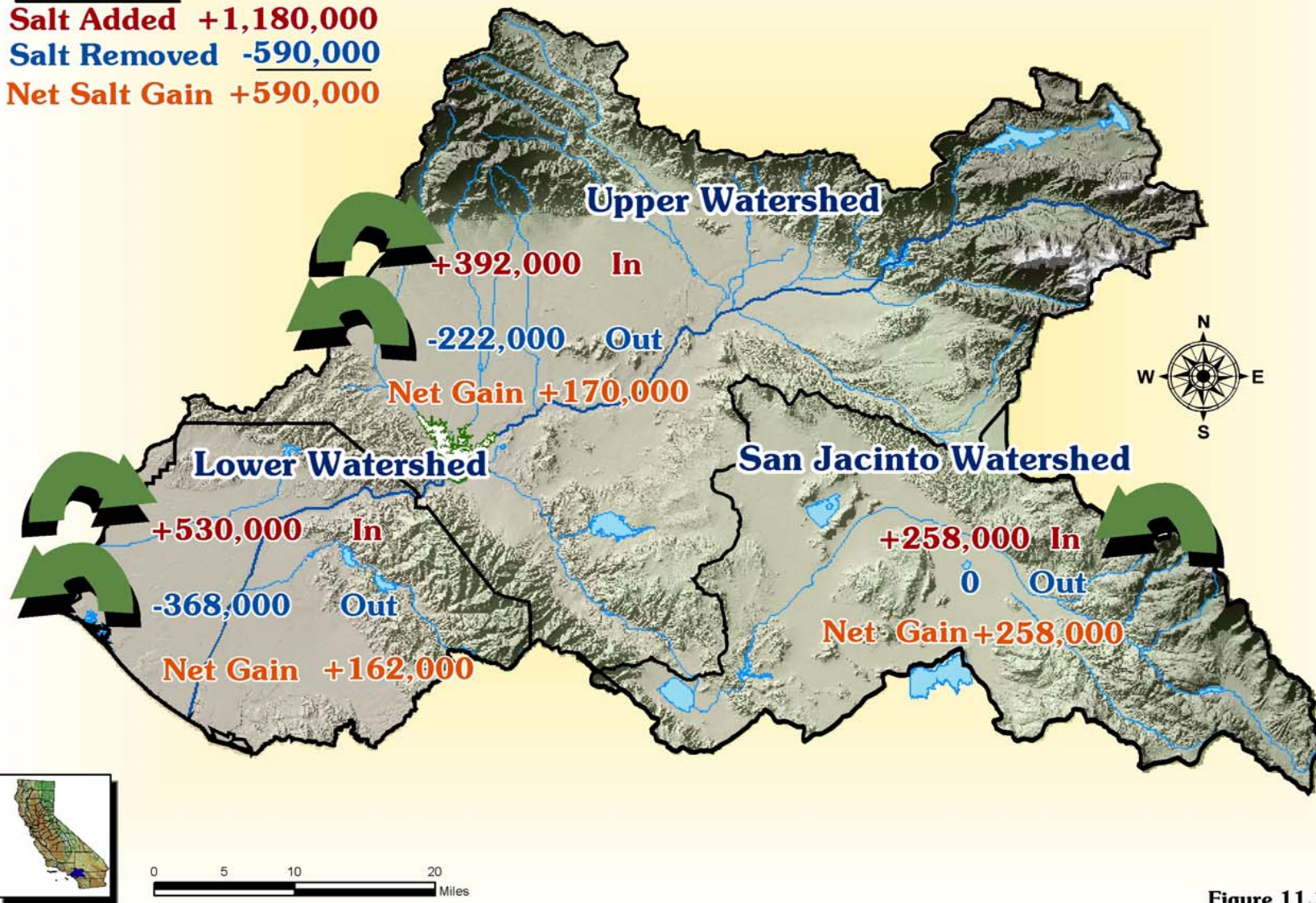
with Member District Plans

Total

Salt Added +1,180,000

Salt Removed -590,000

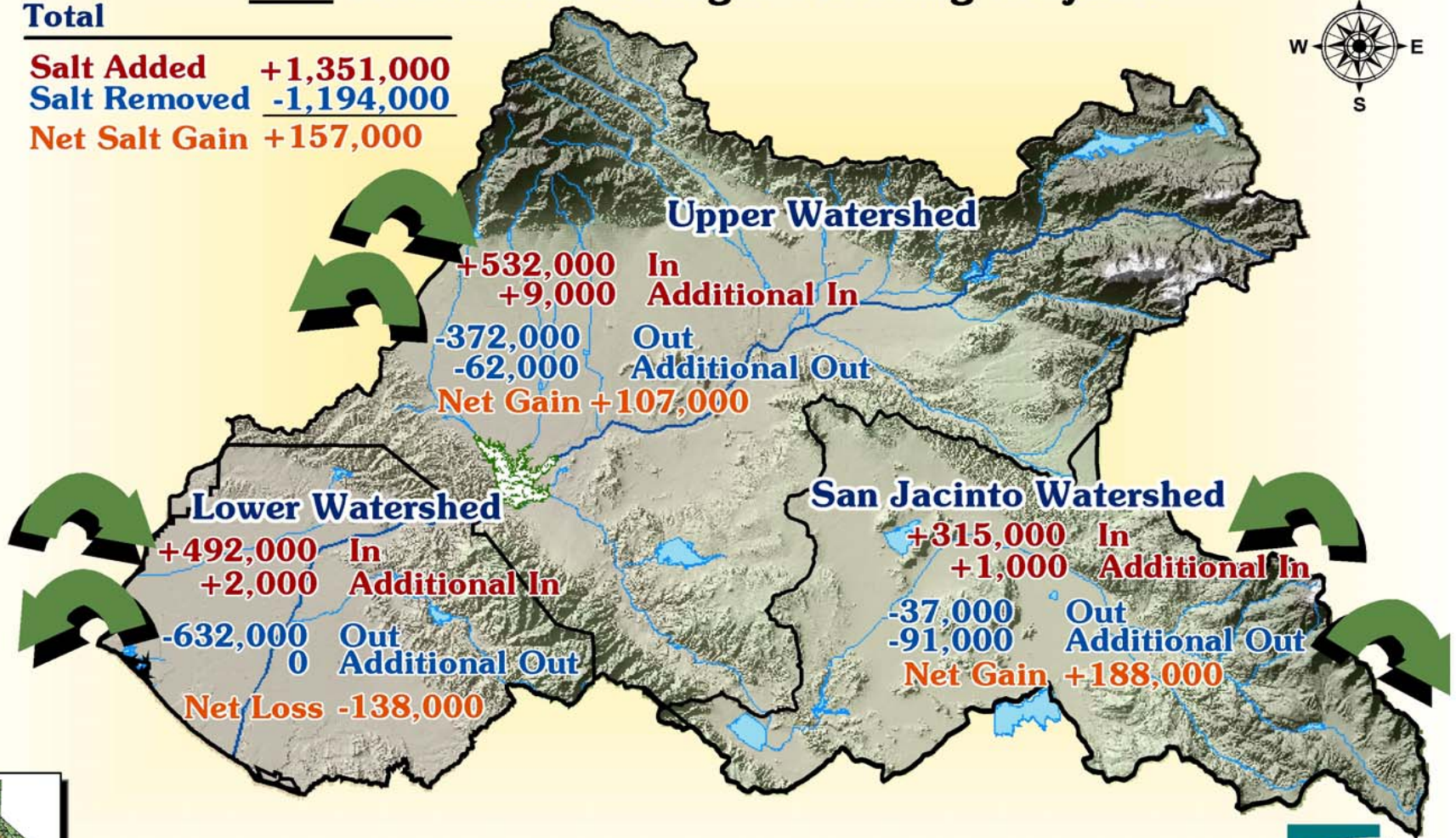
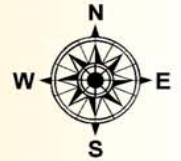
Net Salt Gain +590,000



Salt Balance (Tons) in the Santa Ana River Basin Year 2025 with Member District Plans And Additional Drought Proofing Projects

Total

Salt Added +1,351,000
Salt Removed -1,194,000
Net Salt Gain +157,000



0 5 10 20
Miles

Figure 11.3



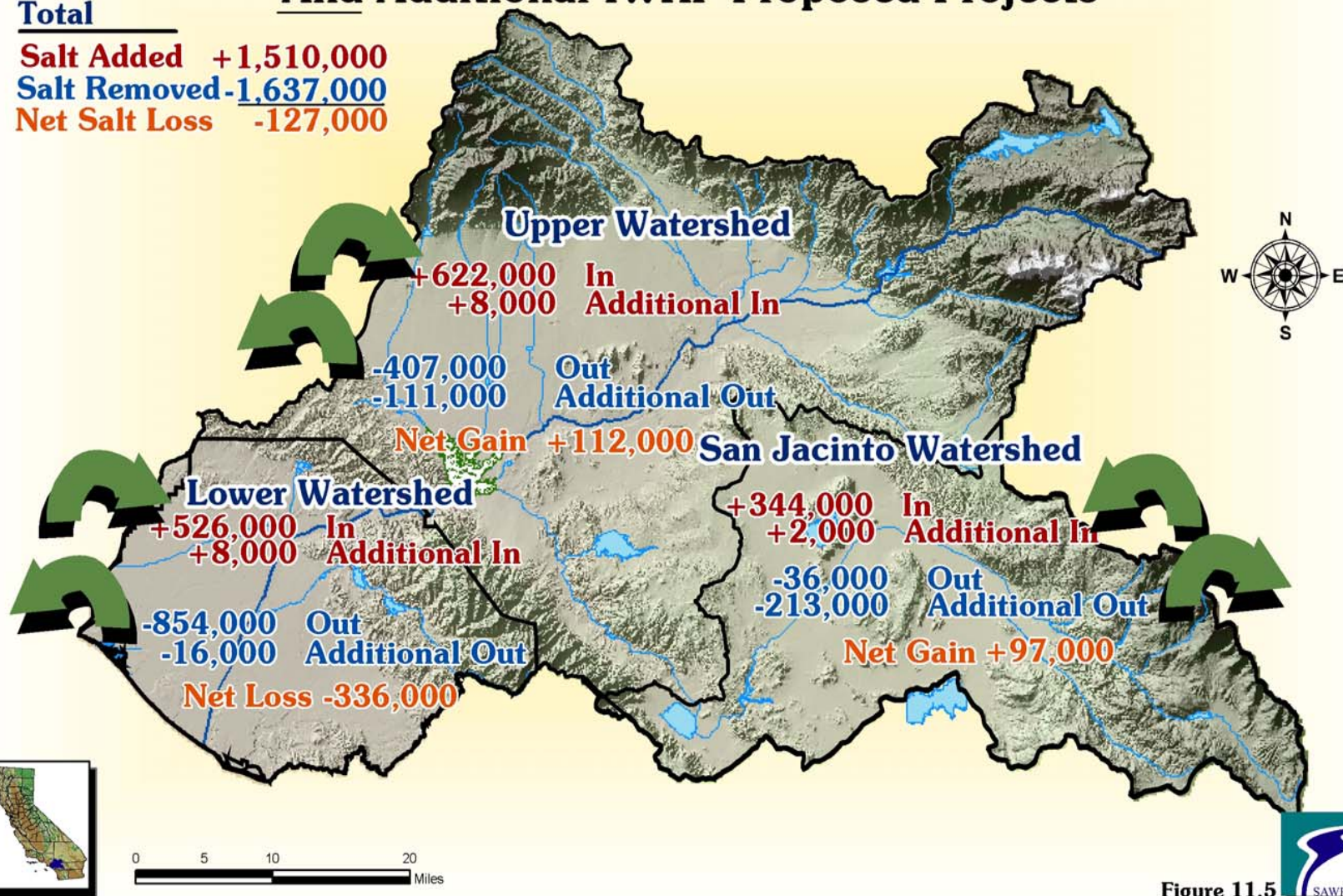
Salt Balance (Tons) in the Santa Ana River Basin Year 2050 with Member District Plans And Additional IWRP Proposed Projects

Total

Salt Added +1,510,000

Salt Removed -1,637,000

Net Salt Loss -127,000



Findings

- Population growth projections show a planning gap beyond year 2020
- Expand listed projects to reduce drought year imported water demand on the State and Colorado River System:
 - Conjunctive use/Groundwater Banking
 - Desalting/ion exchange and Recycled water
 - Conservation
- Salt Balance NOT achieved by projects in current local agency plans
- Watershed Salt Balance can be achieved by 2050 with IWRP drought-proof projects